

REMARKS

1. Status of the Claims

Independent claims 1 and 31 have been amended to address the Examiner's rejection under 35 USC § 112 and to incorporate the limitations of claims 2 and 9.

Claims 2 and 9 have, therefore, been canceled.

Claim 13 has been amended to insert the word "claim" which was inadvertently missing. No new matter has been added.

2. Claim Rejections – 35 USC § 112

Claims 1-18, 31-36 and 41 have been rejected under 35 USC § 112, second paragraph. This rejection is respectfully traversed. Reconsideration and withdrawal thereof are requested.

The Examiner has objected to the term "large" in the claims as being relative and indefinite. The phrase "a large number of" in claims 1-31 has been replaced with "a plurality of". Support for this amendment can be found in the specification at, for example, page 15, line 1, page 44, line 16 and by the original phrase "large number of" which would be understood by those skilled in the art to support the language "a plurality of".

Reconsideration and withdrawal of the rejection, are therefore, requested.

3. Claims Rejection - 35 USC § 103

3.1. Rejection of Claims 1 and 4-8

Claims 1 and 4-8 have been rejected over Chan (US5753477) in view of Eddelman (US3985649). This rejection is respectfully traversed. Reconsideration and withdrawal thereof are requested.

As noted above, the limitations of original claims 2 and 9 have been incorporated into claim 1. Since claims 2 and 9 have not been rejected over Chan in view of Eddelman, it is believed that this claim amendment obviates this rejection. Reconsideration and withdrawal of the rejections are, therefore, requested.

3.2. Rejection of Claims 2, 5, 6, 9 and 31-36

Claims 2, 5, 6, 9 and 31-36 have been rejected under 35 USC § 103 over Chan and Eddelman and further interview of Dzekunov (US20030073238). This rejection is respectfully traversed. Reconsideration and withdrawal thereof are requested.

Chan does not expressly state that the magnets of the introduction treatment unit are vertically translatable so as to move magnetic supports grouped in a planar form along a direction normal to a developed surface of the planar form. However this is not the only distinction between Chan and the instant invention. In addition, in Chan the introduction treatment unit does not have a liquid passage through which said mixture solution can pass, and it does not have a pressure adjuster which draws and discharges the solution by adjusting the pressure in said liquid passage, as a magnetic force control unit.

The Examiner asserts that Eddelman discloses a system for mixing and separating biological materials using magnetic supports (Figure 7:33) within a reaction chamber/packing unit (Figure

7:31), and that a magnet is provided adjacent to reaction chamber, which is capable of grouping the magnetic supports to create a planar form (Figure 9:37) with the reaction chamber. The Examiner states that Chan and Eddelman are analogous art because they are from the same field of endeavor regarding magnetic mixing and separation systems.

However, an important distinction between the instant invention as compared to Chan and Eddelman, is that the magnetic support of Eddelman is used for separating target substances in a liquid (see, e.g., claim 1 of Eddelman), and hence is sufficiently larger than the target substances (corresponding to hosts in the present claims). Therefore, the magnetic support of Eddelman does not allow entry into the target substances. In fact, Eddelman discloses that the diameter of the magnetic support is between one-tenth and 10 millimeters (claim 2 thereof) or one-half millimeter (claim 3) and is larger than the target substances or cells or bacteria to be captured by the magnetic supports.

In contrast thereto, as defined in amended claims 1, and 31 of the present application, the magnetic support is of a size that allows entry into said host. In fact, the present application specifically states that, “for example, if the host is a prokaryotic cell, it would be between about 100 nm and 200 nm. If it is a eukaryotic cell such as for example, yeast or an animal cell, it would be between 1 μ m and 2 μ m.” (See page 5, line 27 to page 6, line 1). In other words, the size, function and action of the magnetic support in the instant invention are clearly distinct from those of the magnetic support in Eddelman. Therefore, the function and action of the introduction treatment unit are also distinct from those of the magnet in Eddelman therefore, even if they are from the fields of endeavor regarding magnetic mixing and separation systems, just like the are of using a large magnetic ball for separating or recovering iron cannot be analogous to that of Chan, so the art of Eddelman cannot be analogous to that of Chan, considering that the size, function and action of the magnetic support are distinct each other. Further, Eddelman does not disclose that the reaction chamber/packing unit has a liquid passage through which said mixture solution can pass, and has a pressure adjuster which draws and discharges the solution by adjusting the pressure in said liquid passage, as said magnetic force control unit which controls said magnetic supports moves relatively with respect to said host, by

changing the relative position or the velocity between said packing unit or said mixture solution and said magnetic source, or the magnetic force itself due to said magnetic source. Thus, even a combination of the references does not teach all of the limitations of the present claims.

The Examiner asserts that Dzekunov teaches that cells are porated within a liquid passage (Figure 13:40), and that the fluid flow through the passage is regulated using a plurality of valves and pumping means of Dzekunov which serve as pressure adjusters, because they are used to increase and decrease the fluid pressure within the passage at any given time. However, in Dzekunov, Fig. 12 shows that Prime bag and Cells + IHP bag are provided on the one side of Flow path for electroporation of cell suspension (corresponding to flow channel 40 being constructed of two opposing electrode plates 10 in Fig. 13 and paragraphs 0246-0251), and a Waste bag and Product bag are provided on the other side thereof. Further, the reference describes, at paragraph (0305). "The computer software is then initialized and the hemostats are removed from the bags. The pump is primed by clicking on the 'prime start' button on the GUI (monitor), and the pump is started by clicking on the 'pump on' button on the GUI. This begins the electroporation process. When the blood flow reaches the waste bag, the stream is switched so the sample is collected in the product bag by clicking the 'sample start' button." In other words, in Dzekunov, a liquid flows in a one-way direction from Prime bag and Cells + IHP bag on the upstream side to Product bag and Waste bag on the downstream side through a Flow path. Additionally, magnetic supports are not included in the liquid.

In contrast thereto, in the instant invention the "Flow path" (corresponding to a liquid passage) has an introduction treatment unit that has a pressure adjuster which draws and discharges the solution by adjusting the pressure in said liquid passage, as said magnetic force control unit which controls said magnetic supports to move relatively with respect to said host, by changing the relative position or the velocity between said packing unit or said mixture solution and said magnetic source, or the magnetic force itself due to said magnetic source. Thus, the instant invention is distinct from not only Dzekunov, but also Chan and Eddelman, in that a liquid including magnetic supports in the liquid passage is drawn and discharged in two-way directions

in the instant invention and that a liquid including no magnetic supports is moved in a one-way direction in Dzekunov.

The instant invention has the remarkable advantage that by drawing and discharging the solution, the mixture solution can be readily put into the packing unit or discharged. Moreover, by causing various relative motions between the host contained in the mixture solution which is mixed by the drawing and discharging motion, and because the magnetic support is moved by the magnetic source, the chance of collision or encounter can be increased (on page 16, lines 15-19 of the specification).

In summary, the instant invention is distinct from Chan, Eddelman and Dzekunov, in that the instant invention (1) has a magnetic force control unit which controls the magnetic supports to move relative to the host, by changing the relative position or the velocity between the packing unit or the mixture solution and the magnetic source, or the magnetic force itself due to the magnetic source; (2) the packing unit has a liquid passage through which the mixture solution can pass, and (3) the packing unit has a pressure adjuster which draws and discharges the solution by adjusting the pressure in the liquid passage, as the magnetic force control unit. Because of these features, the instant invention has the remarkable advantages discussed above. Hence the instant invention, specifically as recited in amended claims 1 and 31, is not obvious over any combination of Chan, Eddelman and Dzekunov. Therefore, the rejection of the claims should be withdrawn.

3.3. Rejections of Claims 10-16

Claims 10-16 have been rejected under 35 USC § 103 over Chan and Eddelman and further interview of Lafferty (US20030096220).

As noted above, claim 1 has been amended to incorporate the limitations of claims 2 and 9. Since claims 2 and 9 have not been rejected over Chan in view of Eddelman or over Chan and

Eddelman in view of Lafferty, it is believed that the amendment to the claims obviates the rejection of claims 10-16. In other words, Lafferty does not overcome the deficiencies of Chan and Eddelman as discussed above.

3.4. Rejection of Claims 17, 18 and 41

Claims 17, 18 and 41 have been rejected under 35 USC § 103 over Chan and Eddelman further interview of Blankenstein (US20030044832). This rejection is respectfully traversed. Reconsideration and withdrawal thereof are requested.

As noted above, claim 1 has been amended to incorporate the limitations of claims 2 and 9 which were not rejected over any combination of Chan, Eddelman and Blankenstein. As a result, it is believed that the amendments to claim 1 obviate this rejection. In other words, Blankenstein does not overcome the deficiencies of Chan and Eddelman as discussed above.

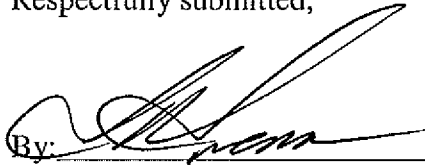
In view of the above, reconsideration and withdrawal of the rejections an early allowance of the claims are requested.

Pursuant to 37 C.F.R. §§ 1.17 and 1.136(a), Applicant(s) respectfully petition(s) for a three (3) month extension of time for filing a reply in connection with the present application, and the required fee of \$555.00 is attached hereto.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to our Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. § 1.16 or under § 1.17; particularly, extension of time fees.

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Respectfully submitted,

By: 

Leonard R. Svensson
Registration No.: 30,330
BIRCH, STEWART, KOLASCH & BIRCH, LLP
12770 High Bluff Drive
Suite 260
San Diego, California 92130
(858) 792-8855
Attorney for Applicant